CLAIMS

What is claimed is:

1. A storage filing system for a storage network, the storage filing system comprising:

a communication channel coprocessor comprising a plurality of first symmetric processors and configured to receive a request for data from a communication network and process the request to perform access control and determine a file system object for the data;

a file processor comprising a plurality of second symmetric processors and configured to determine a storage location for the data in the storage network using volume services based on the file system object; and

a storage processor connected to the storage network and configured to read the data from or write the data to the storage location.

2. The storage filing system of claim 1 further comprising a switching system configured to switch information between the communication channel coprocessor, the file processor, and the storage processor.

3. The storage filing system of claim 1 wherein the communication channel coprocessor and the file processor are configured to execute unbounded programs.

4. The storage filing system of claim 1 wherein the communication channel coprocessors and the file processors are configured to execute multi-threaded programs.

5. The storage filing system of claim 1 further comprising:

a user cache configured to store the data; and

a meta data cache configured to store file system information.

6. The storage filing system of claim 1 further comprising a network interface configured to interface with a plurality of other storage filing systems.

7. The storage filing system of claim 1 further comprising a host main processor configured to provide high-level control of the storage filing system.

8. A method of operating a storage filing system for a storage network, the method comprising the steps of:

receiving a request for data from a communication network into a communication channel coprocessor comprising a plurality of first symmetric processors;

processing the request in the communication channel coprocessor to perform access control and determine a file system object for the data;

determining a storage location for the data in a storage network using volume services based on the file system object in a file processor comprising a plurality of second symmetric processors; and

in a storage processor connected to the storage network, reading the data from or writing the data to the storage location.

9. The method of claim 8 further comprising switching information in a switching system between the communication channel coprocessor, the file processor, and the storage processor.

10. The method of claim 8 further comprising executing unbounded programs in the communication channel coprocessor and the file processor.

11. The method of claim 8 further comprising executing multi-threaded programs in the communication channel coprocessor and the file processor.

12. The method of claim 8 further comprising:

storing the data in a user cache; and

storing file system information in a meta data cache.

13. The method of claim 8 further comprising interfacing with a plurality of other storage filing systems through a network interface.

14. The method of claim 8 further comprising providing a high-level control of the storage filing system in a host main processor.

15. A storage filing system for storage networks, the storage filing system comprising:

means for receiving a request for data from a communication network into a communication channel coprocessor comprising a plurality of first symmetric processors;

means for processing the request in the communication channel coprocessor to perform access control and determine a file system object for the data;

means for determining a storage location for the data in a storage network using volume services based on the file system object in a file processor comprising a plurality of second symmetric processors; and

means for reading the data from or writing the data to the storage location in a storage processor connected to the storage network.

16. The storage filing system of claim 15 further comprising means for switching information between the communication channel coprocessor, the file processor, and the storage processor.

17. The storage filing system of claim 15 further comprising means for executing unbounded programs in the communication channel coprocessor and the file processor.

18. The storage filing system of claim 15 further comprising means for executing multi-threaded programs in the communication channel coprocessor and the file processor.

19. The storage filing system of claim 15 further comprising

means for storing the data in a user cache; and

means for storing file system information in a meta data cache.

20. The storage filing system of claim 15 further comprising means for interfacing with a plurality of other storage filing systems through a network interface.

21. The storage filing system of claim 15 further comprising means for providing a high-level control of the storage filing system in a host main processor.

22. A storage filing system for a storage network, the storage filing system comprising:

a channel coprocessor comprising first symmetric processors and configured to perform access control for users;

a file processor comprising second symmetric processors and configured to perform file services and volume services; and

a storage processor configured to perform data transactions over the storage network.

23. The storage filing system of claim 22 further comprising a switching system configured to switch information between the communication channel coprocessor, the file processor, and the storage processor.

24. The storage filing system of claim 22 wherein the communication channel coprocessor and the file processor are configured to execute unbounded programs.

25. The storage filing system of claim 22 wherein the communication channel coprocessors and the file processors are configured to execute multi-threaded programs.

26. The storage filing system of claim 22 further comprising:

a user cache configured to store the data; and

a meta data cache configured to store file system information.

27. The storage filing system of claim 22 further comprising a network interface configured to interface with a plurality of other storage filing systems.

28. The storage filing system of claim 22 further comprising a host main processor configured to provide high-level control of the storage filing system.

29. A system for a storage network comprising:

a communication network;

a first storage filing system comprising:

a first channel coprocessor comprising first symmetric processors and configured to perform access control for users;

a first file processor comprising a plurality of second symmetric processors and configured to perform file services and volume services; and

a first storage processor configured to perform data transactions over the storage network; and

a first interface to communicate over the communication network; and

a second storage filing system comprising:

a second channel coprocessor comprising third symmetric processors and configured to perform the access control for the users;

a second file processor comprising fourth symmetric processors and configured to perform the file services and the volume services; and

a second storage processor configured to perform the data transactions over the storage network; and

a second interface to communicate with the first storage filing system over the communication network.